

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
27 January 2005 (27.01.2005)

PCT

(10) International Publication Number
WO 2005/007891 A2

(51) International Patent Classification⁷:

C12Q 1/68

(21) International Application Number:

PCT/US2004/019489

(22) International Filing Date: 18 June 2004 (18.06.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/480,035 19 June 2003 (19.06.2003) US

(71) Applicant (*for all designated States except US*): THE GOVERNMENT OF THE UNITED STATES OF AMERICA, represented by THE SECRETARY OF THE DEPARTMENT OF HEALTH AND HUMAN SERVICES [US/US]; National Institute of Health, Office of Technology Transfer, 6011 Executive Blvd., Suite 325, Rockville, MD 20852-3804 (US).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): DRAYNA, Dennis [US/US]; 10600 Cloverbrooke Drive, Potomac, MD 20854 (US). KIM, Un-Kyung [KR/US]; 421 West Side Drive, #204, Gaithersburg, MD 20878 (US).

(74) Agent: HARDING, Tanya, M.; Klarquist Sparkman, LLP, One World Trade Center, 121 S.W. Salmon Street, Suite 1600, Portland, OR 97204 (US).

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— *of inventorship (Rule 4.17(iv)) for US only*

Published:

— *without international search report and to be republished upon receipt of that report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 2005/007891 A2

(54) Title: VARIANTS OF HUMAN TASTE RECEPTOR GENES

(57) Abstract: Identified herein are different forms of bitter receptor genes that occur in different humans. These alleles are generated by numerous coding single nucleotide polymorphisms (cSNP's) that occur within the members of the T2R gene family. Some SNP's cause amino acid substitutions, while others introduce chain termination codons, rendering the allele non-functional. Differences in these genes are believed to have a large effect on those individuals' sense of bitter taste, such that these individuals perceive the taste of bitter substances differently than the rest of the population. The ability to assay this allelic information is useful in the development of flavorings and flavor enhancers, as it can be used to define large groups and populations who perceive bitter tastes differently. This in turn allows the taste preferences of these groups to be addressed at the molecular level for the first time.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
27 January 2005 (27.01.2005)

PCT

(10) International Publication Number
WO 2005/007891 A3

(51) International Patent Classification⁷:

C12Q 1/68

(21) International Application Number:

PCT/US2004/019489

(22) International Filing Date: 18 June 2004 (18.06.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/480,035

19 June 2003 (19.06.2003) US

(71) Applicant (for all designated States except US): THE GOVERNMENT OF THE UNITED STATES OF AMERICA, represented by THE SECRETARY OF THE DEPARTMENT OF HEALTH AND HUMAN SERVICES [US/US]; National Institute of Health, Office of Technology Transfer, 6011 Executive Blvd., Suite 325, Rockville, MD 20852-3804 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): DRAYNA, Dennis [US/US]; 10600 Cloverbrooke Drive, Potomac, MD 20854 (US). KIM, Un-Kyung [KR/US]; 421 West Side Drive, #204, Gaithersburg, MD 20878 (US).

(74) Agent: HARDING, Tanya, M.; Klarquist Sparkman, LLP, One World Trade Center, 121 S.W. Salmon Street, Suite 1600, Portland, OR 97204 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— of inventorship (Rule 4.17(iv)) for US only

Published:

— with international search report

(88) Date of publication of the international search report:
9 June 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: VARIANTS OF HUMAN TASTE RECEPTOR GENES

(57) Abstract: Identified herein are different forms of bitter receptor genes that occur in different humans. These alleles are generated by numerous coding single nucleotide polymorphisms (cSNP's) that occur within the members of the T2R gene family. Some SNP's cause amino acid substitutions, while others introduce chain termination codons, rendering the allele non-functional. Differences in these genes are believed to have a large effect on those individuals' sense of bitter taste, such that these individuals perceive the taste of bitter substances differently than the rest of the population. The ability to assay this allelic information is useful in the development of flavorings and flavor enhancers, as it can be used to define large groups and populations who perceive bitter tastes differently. This in turn allows the taste preferences of these groups to be addressed at the molecular level for the first time.

WO 2005/007891 A3